Statement of Norbert Krause

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Good Morning. My name is Norbert Krause and I am Director of the Engineering and Environmental Office of Volkswagen of America, Inc. The Volkswagen Group is the world's fourth largest automobile manufacturer and the world's fifteenth largest company. On behalf of my 1,200 colleagues who work for Volkswagen at our Auburn Hills headquarters, I would like to welcome you to Michigan and thank you for Congress' interest in biofuels.

Volkswagen is convinced that biofuels will play a critical role in meeting transportation needs in the US and throughout the world. We have established a global Powertrain and Fuels Strategy that emphasizes the need to develop advanced propulsion technologies in a way that is integrated with the development of future fuels. Biofuels such as biodiesel and ethanol form the foundation for a portfolio of renewable fuels that will be needed to achieve sustainable mobility, and to reduce dependence on petroleum.

At Volkswagen, we believe it is critically important to make the most efficient use of existing resources like petroleum based fuels, since these will continue to play a large

role. Our chairman, Dr. Bernd Pischetsrieder, has stated that every new Volkswagen model will use less fuel than its predecessor.

Volkswagen has invested in developing a wide range of fuel saving technologies, from systems that increase the fuel efficiency of gasoline fueled cars, to clean diesels that offer both superb performance and high efficiency, to hybrids and, for the long term, hydrogen fuel cells. Our major focus today is on the development of clean, efficient diesel passenger cars for the US market.

DIESEL

Volkswagen is the leading seller of diesel powered passenger cars in the United States. Worldwide, over 40 % of our production is powered by a diesel engine. In the US, the penetration of diesels is relatively small, but growing. We believe the growth of diesel sales in the US will continue as more and more consumers, policy makers and the public recognize that today's diesel cars are Powerful, Economical, and Environmentally Friendly. In addition, diesels are Future Oriented-- they offer an efficient and flexible platform for the use of renewable fuels that are the subject of today's hearing.

Diesel vehicles are inherently more **powerfu**l than their gasoline counterparts.

Diesel fuel itself contains more energy per gallon than gasoline. Diesel engines always have been known to deliver high torque at low engine speeds. In addition, the diesel engine's high compression, aided today by turbo charging and direct injection, yields

high thermal efficiency—less of the fuel's energy is wasted. This gives the diesel driver immediate acceleration and powerful performance coupled with great fuel efficiency. In March of this year, a diesel powered Audi R10 race car won the 12 Hours of Sebring – the first Sebring victory ever for a diesel powered race car. The car was fueled with a a synthetic diesel fuel made from natural gas. The same process can be used to make diesel fuel from biomass. We hope for a repeat victory at the 24 hours of LeMans next month.

Diesels also have long been noted for their **economy**. Diesels offer more than a thirty percent increase in fuel economy over similar models with a gasoline engine. Today, this is achieved without sacrificing performance and also with a substantial performance improvement. According to the EPA, four of the ten most fuel-efficient vehicles available in America for the 2006 model year are diesel powered Volkswagens.

Today's advanced diesel engine is also **environmentally friendly**. Concern about emissions of greenhouse gases has increased throughout the world. Diesels emit around 30% less CO2, the principle greenhouse gas emission from automobiles. Diesel emissions overall have been reduced by 80 percent over the last 10 years. Soon, we will introduce diesel vehicles that meet the same emissions limits that are applicable to gasoline cars.

Because of its excellent fuel economy, diesel provides an excellent way to conserve existing petroleum resources. The diesel engine is also **future oriented** since it provides

an excellent platform for the use of renewable fuels like biodiesel that will power tomorrow's cars. Already, biodiesel is gaining acceptance and popularity in the US market. In the future, synthetic diesel fuels made from natural gas and biomass will join biodiesel as the next generation of biofuels. This diverse portfolio will continue to displace petroleum use and support clean efficient diesel technology for decades to come.

BIODIESEL

Biodiesel is a renewable fuel currently made from soybeans, canola, and other crops. Biodiesel has been popular in Europe for many years, and is used often as an invisible, low level blending agent that extends the supply of petroleum, contributes to reduced greenhouse gas emissions, and provides an important market for our farmers. The biodiesel industry is developing rapidly in the US, and Volkswagen is working closely with the industry.

In 2004, Volkswagen and ADM entered a cooperative research agreement to study the use of biodiesel on our light duty diesel vehicles. After over a year of research and testing, Volkswagen decided in March of 2005 to recommend that our US customers can fuel their cars with B5, a five-percent blend of biodiesel in petroleum diesel, without affecting warranty coverage. We were the first manufacturer to offer this coverage.

It is important to recognize that the properties of all fuels are of great concern to vehicle manufacturers, since we must certify and guarantee the performance of our products. Our ability to extend our warranty coverage is directly related to the existence of suitable

standards for fuel, so that we can be sure of consistently adequate fuel properties for all of our customers at all times. The Biodiesel Industry, and particularly the National Biodiesel Board has worked in close cooperation with us to develop new elements for fuels standards that are needed today and in the future.

We are now conducting fleet tests using B20 to determine how this more concentrated blend will affect current and future engines and emissions control systems. We will be informing the biodiesel industry of the results and will continue to cooperate with them in the standards setting process.

As this research continues, we are educating our customers about the use of B5 and participating in promotional activities to encourage the development of high quality biodiesel fuels that will provide excellent performance and reliability, cut net greenhouse gas emissions, and reduce petroleum dependence.

OTHER RENEWABLE FUELS

Volkswagen is participating actively in projects to help to develop other renewable fuels such as synthetic diesel fuels made from biomass (BTL), and ethanol made from cellulosic feed stocks. We design our gasoline-fueled cars to run on low-level ethanol blends such as E10, and we are evaluating the market for flexible fuel cars, which we do produce and sell in Brazil. We have significant partnerships with Choren Industries and DaimlerChrysler on the BTL diesel fuel, and with Shell and Iogen on a new process for making ethanol from any cellulosic feedstock.

Volkswagen believes that none of these alternatives alone can or will replace the others. It is therefore necessary for companies like ours to cooperate with agricultural producers, energy companies, governmental authorities and other stakeholders to develop an integrated array of technologies and fuels that will support sustainable mobility.

SUPPORTING BIODIESEL AND OTHER BIOFUELS DEVELOPMENT

We believe that the growth of the light duty diesel market and the increased use of biodiesel in the U.S. are intertwined. In the month of April, as gas prices rose, demand for the diesel versions of some of our models grew to over 40% in some markets, compared with a traditional rate of around 10%. Surveys show that many diesel buyers select their cars not only for performance and fuel efficiency, but also for their ability to use biodiesel blends.

There are several public policies enacted by Congress that have encouraged us to invest time and resources in the biofuels sector. These include:

--The federal tax credit for biodiesel producers. This has helped the construction of new biodiesel plants throughout the US.

--The requirement of Ultra Low Sulfur Diesel fuel that becomes effective this October. Cleaner fuel is absolutely critical to the industry's ability to offer technology that meets our energy and air quality needs.

--Consumer tax credits for advanced technology vehicles: The 2005 Energy Bill expanded the consumer hybrid tax incentive to include light duty diesels which meet the strict Tier II, Bin V emission standards. This tax credit will help to expand advanced diesel sales and provide a larger market for biodiesel fuels.

Together, vehicles manufacturers and the agriculture community can help meet America's growing transportation needs while still providing safe, reliable, affordable, and exciting vehicles. On behalf of Volkswagen I thank the Committee for this opportunity to testify.

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